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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/655,983

09/05/2003

Viktor P. Astakhov

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08/02/2006

BROOKS KUSHMAN P.C./FGTL
1000 TOWN CENTER
22ND FLOOR
SOUTHFIELD, MI 48075-1238

EXAMINER

GATES, ERIC ANDREW

ART UNIT

PAPER NUMBER

3722

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/655,983	Applicant(s) ASTAKHOV ET AL.	
	Examiner Eric A. Gates	Art Unit 3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-21 is/are allowed.
- 6) ☒ Claim(s) 1,2,11 and 25 is/are rejected.
- 7) ☒ Claim(s) 3-10 and 12-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/25/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to Applicant's amendment filed on 25 April 2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (JP 57083313 A).
4. Regarding claim 1, Suzuki et al. discloses a gundrill for forming deep holes in a body of material as the gundrill is relatively rotated, axially advanced and supplied with drilling fluid, the gundrill comprising: an elongate tubular shank 2 having a driven end (end attached to drive section 1), a distal end (end attached to tip 4) and a central region extending therebetween along a central axis, the tubular shank 2 having a cross-section defining a shank flute 3 extending from the distal end for at least a substantial portion of the length of the central region, providing a portion of an elongate fluid return path between the hole being drilled and the shank flute, allowing drilling fluid, which is pumped into an internal fluid passage (not shown but inherently connected to oil supply hole 10) formed through the tubular shank to exit the hole being drilled removing chips as they are formed; and a cutting tip 4 affixed to the distal end of the tubular shank, the

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cutting tip having an internal fluid passageway 10 which is coupled to the tubular shank internal passageway and terminates in an orifice 10 formed in a tip end surface 9, a tip flute 16 extending axially from the tip end surface toward and generally aligned with the shank flute 3 providing a portion of the elongate fluid return path, the tip flute defined by a secondary flank surface (not labeled, bottom surface of flute 16 in figure 1, label for flute 16 points to this surface in figure 1) and a generally radially extending primary rake surface (not labeled, top surface of flute 16 in figure 1) having a peripheral rake edge (not labeled, edge formed by primary rake surface and cutting tip 4 surface as shown in figure 1) lying on a cylindrical surface coaxial with the central axis, and a generally radially extending cutting edge (edges formed by junction of surfaces 5 and 8 and surfaces 5 and 6) at the tip end which defines a radially offset point (formed by ridge 22 at edge of surface 5) oriented between ends of the radially extending cutting edge (see figures 1 and 3); wherein the surface 9 of the cutting tip circumferentially behind the peripheral rake edge as the gundrill rotates (as the gundrill rotates, surface 9 is circumferentially behind the peripheral rake edge and surfaces 6, 7, and 8) deviates inwardly sufficiently from the cylindrical hole to form an enlarged localized relief passage 18 which provides an alternative exit path for drilling fluid, the relief passage 18 extending from the tip end toward the tubular shank member (see figures 1, 2, and 3).

5. Regarding claim 25, Suzuki et al. discloses wherein the enlarged localized relief passage 18 is non-cylindrical (see figure 3) for facilitating the flow of drilling fluid.

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6. Claims 2 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (JP 57083313 A).

7. Regarding claim 2, Suzuki et al. discloses a gundrill for forming deep holes in a body of material as the gundrill is relatively rotated, axially advanced and supplied with drilling fluid, the gundrill comprising: an elongate tubular shank 2 having a driven end (end attached to drive section 1), a distal end (end attached to tip 4) and a central region extending therebetween along a central axis, the tubular shank 2 having a cross-section defining a shank flute 3 extending from the distal end for at least a substantial portion of the length of the central region, providing a portion of an elongate fluid return path between the hole being drilled and the shank flute, allowing drilling fluid, which is pumped into an internal fluid passage (not shown but inherently connected to oil supply hole 10) formed through the tubular shank to exit the hole being drilled removing chips as they are formed; and a cutting tip 4 affixed to the distal end of the tubular shank, the cutting tip having an internal fluid passageway 10 which is coupled to the tubular shank internal passageway and terminates in an orifice 10 formed in a tip end surface 9, a tip flute 16 extending axially from the tip end surface toward and generally aligned with the shank flute 3 providing a portion of the elongate fluid return path, the tip flute defined by a secondary flank surface (not labeled, bottom surface of flute 16 in figure 1, label for flute 16 points to this surface in figure 1) and a generally radially extending primary rake surface (not labeled, top surface of flute 16 in figure 1) having a peripheral rake edge (not labeled, edge formed by primary rake surface and cutting tip 4 surface as shown in figure 1) lying on a cylindrical surface coaxial with the central axis, and a generally

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radially extending cutting edge (edges formed by junction of surfaces 5 and 8 and surfaces 5 and 6) at the tip end which defines a radially offset point (formed by ridge 22 at edge of surface 5); wherein the surface 9 of the cutting tip circumferentially behind the peripheral rake edge as the gundrill rotates (as the gundrill rotates, surface 9 is circumferentially behind the peripheral rake edge and surfaces 6, 7, and 8) deviates inwardly sufficiently from the cylindrical hole to form an enlarged localized relief passage 18 which provides an alternative exit path for drilling fluid, the relief passage 18 extending from the tip end toward the tubular shank member (see figures 1, 2, and 3), wherein the tip end surface of the cutting tip cooperates with the hole being drilled to define a toroidal bottom space area (see figure 3) having a portion thereof which lies between the end of the tip and hole bottom forming a pressurized end clearance volume which receives drilling fluid through the tip orifice 10 and discharges drilling fluid through the relief passage 18 and an outlet passage 16, which is generally bounded by the distal edge of the secondary flank surface and the bottom of the hole being drilled.

8. Regarding claim 11, Suzuki et al. discloses wherein the cutting tip is provided with a crossover port 18 connecting the relief passage 18 to the elongate fluid return path 16.

Allowable Subject Matter

9. Claims 17-21 are allowed.

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10. Claims 3-10 and 12-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments, see pages 9-12, filed 25 April 2006, with respect to the rejection(s) of claims 2-21 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Suzuki et al.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric A. Gates whose telephone number is 571-272-5498. The examiner can normally be reached on Monday-Thursday 7:45-6:15.

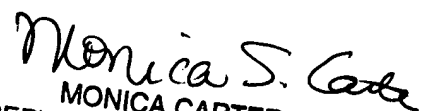
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on 571-272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



EAG
26 July 2006



MONICA CARTER
SUPERVISORY PATENT EXAMINER